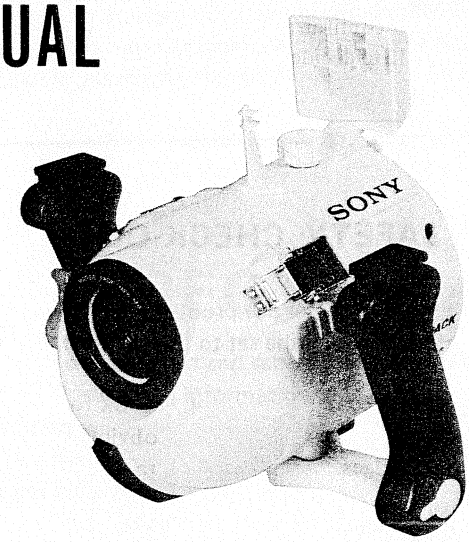
MPK-M8

SERVICE MANUAL



US Model
Canadian Model
UK Model
E Model

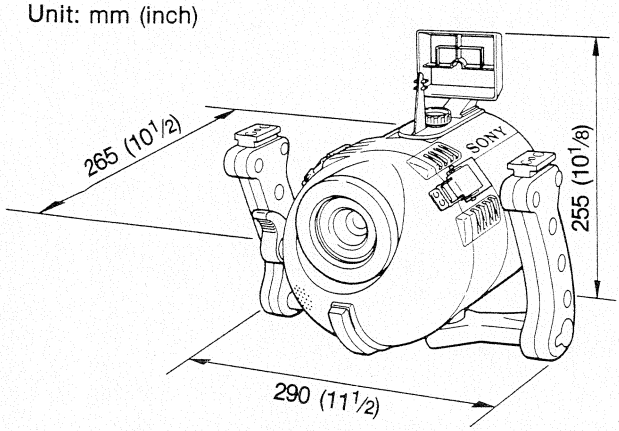
May, 1986

Handycam

SPECIFICATIONS

Compatible equipment	CCD-M8 series video camera recorder
Material	Plastic (ABS and PC), glass
Water-proof	O-ring, 3 buckles
Usable depth	Up to 50 meters (165 feet)
Power sources	One battery pack NP-22
Underwater microphone	Piezoelectric microphone
Controllable function	Recording start/stop
Dimensions	

Unit: mm (inch)



Weight	Approx. 5.2 kg (11 lb 7 oz) with the CCD-M8 and battery pack equipped
Accessories supplied	
	Sports finder (1)
	Spare O-ring (1)
	Spare waterproof gasket (1)
	Microphone adaptor (1)
	Hexagonal wrench (1)
	Grease (1)

MICROFILM

MARINE PACK

SONY®

ACC

NOTE FOR SERVICE

The Sony marine pack MPK-M8 requires a hydraulic pressure testing (underwater testing) to find the defective portion and to confirm after repairing the waterproofed portions. See the checklist on page 11 and 12 to decide whether the hydraulic pressure testing is necessary or not.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

TABLE OF CONTENTS

Section	*Title*	*Page*
1.	GENERAL	
1-1.	Features	3
1-2.	Precautions	3
1-3.	Notes on the O-ring and Waterproof Gasket	4
1-4.	Components of the Marine Pack	5
1-5.	Preparations before Recording	7
1-6.	Recording Start/Stop	10
1-7.	Use of the Sports Finder	10
1-8.	Water Leakage Checking Window	10
1-9.	Checklist for Hydraulic Pressure Testing (Underwater Testing)	11
1-10.	Water Leakage Test	13
2.	DISASSEMBLY	
2-1.	Removal of Front Housing	15
2-2.	Removal of Battery Case	15
3.	PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM	
	• FH-3 Board	16
4.	EXPLODED VIEWS	
4-1.	Fornt Housing, Fitting Case	17
4-2.	Rear Housing	18
5.	ELECTRICAL PARTS LIST	19

SECTION 1
GENERAL

1-1. FEATURES

The MPK-M8 marine pack is a waterproof housing to allow an 8 mm video camera recorder to be used under water.

- Compact and lightweight for easy transportation
- One-hand operation under water. Once the focus and white balance are set on land, recording start/stop can be activated with a simple lever.
- Usable at a depth as low as 50 meters (165 feet) on US, Canadian, and E Models, and 40 meters (132 feet) on European Model.

1-2. PRECAUTIONS

On video camera recorder

Be careful not to expose the equipment to salty air nor to drip sea water on the equipment.

- Avoid opening the marine pack on the sea or at the seaside. Preparations such as installing and checking the equipment should be made in a place with low humidity and no salty air.
- When a video camera recorder and a monitor TV are to be used on the sea or at the seaside for a long period of time, we recommend that they are checked periodically by a Sony service facility.
- If the equipment becomes wet, take it immediately to the nearest Sony service facility for preventive maintenance.

On the MPK-M8 marine pack

- If the marine pack is put in the water after being opened and closed in a place with high temperature and high humidity, moisture condensation may occur, causing the glass to fog up and perhaps damaging the equipment.
- The waterproof integrity of the marine pack is maintained by the O-ring and waterproof gasket, and the grooves and surfaces where they touch. Be especially careful not to damage or deform those areas.
- Before closing the marine pack, check these areas to see that there are no cracks, dust, sand, hair, etc., and that the O-ring and waterproof gasket are lightly greased.
- Do not leave the marine pack under direct sunlight for a long period of time, otherwise the temperature in the pack may rise and the equipment in the pack may be damaged.
- If you cannot avoid leaving the marine pack under direct sunlight, be sure to cover the pack with a towel or other protection.
- Do not throw the marine pack into the water; lower it gently into the water.

On recording under water

- We recommend you to check before diving that the equipment operates correctly and there is no water leakage at a depth of about one meter (3 feet).
- Be sure to follow the safety rules for diving such as diving period, depth, etc.

When opening the marine pack

To prevent the video camera recorder from getting wet, take care on the following points.

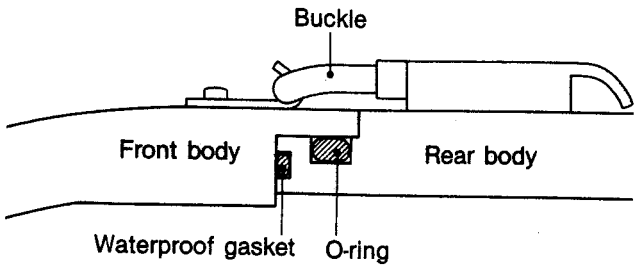
- Dry the marine pack well.
- Soak up any water between the front and rear bodies with a towel.
- Make sure you are dry. Take care that no water drops from your wet suit.

On transportation

- To transport the marine pack for a long distance, remove the video camera recorder or it may be damaged.
- To transport the marine pack by air or by car, remove the equipment from the pack and repack the marine pack in the original shipping carton with the associated packing material.
- To move the marine pack by car with the video camera recorder in position, use cushioning so that shocks or vibration are avoided as much as possible. Be sure to secure the pack firmly so it will not turn over.

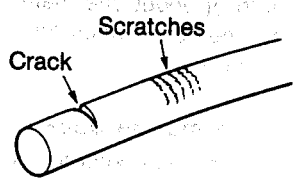
1-3. NOTES ON THE O-RING AND WATERPROOF GASKET

The O-ring and waterproof gasket assure the waterproof function of the MPK-M8. To maintain waterproof integrity, use them correctly. Incorrect operation may cause water to leak in.



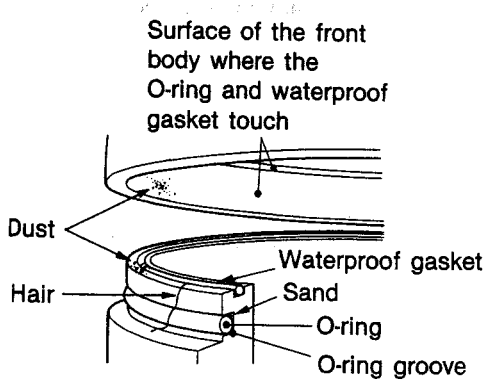
Check that there are no scratches or cracks.

Scratches or cracks on the O-ring or waterproof gasket may cause water to leak in. If there are any, replace the damaged O-ring or gasket with a new one.
Do not remove the O-ring or gasket from the groove with a metal tool or a tool with a sharp point.



Remove any dust, sand or hair from the waterproof gasket.

Check there is no dust, sand or hair on the O-ring or waterproof gasket, or in the groove or on the surface where it touches. If there is, remove completely, or the O-ring or gasket and the surface of the marine pack body may be damaged and water may leak in.

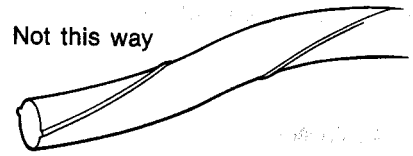


Grease on the O-ring and waterproof gasket.

After checking that there are no cracks or dust on the O-ring and gasket, grease them using the finger. During greasing, recheck that there are no cracks or dust. Never use cloth or paper for greasing because the fibers may cling. The grease protects the O-ring and gasket from wear.

Do not twist the O-ring and waterproof gasket.

Put the O-ring and gasket in the grooves evenly. Never twist them.



Do not trap the O-ring and waterproof gasket with the marine pack.

When closing the marine pack, be careful not to trap the O-ring or gasket between the front and rear bodies. If this happens, not only will the O-ring or gasket be damaged, but also water may leak in.

Storage

Store the supplied spare O-ring and waterproof gasket in a cool place, packed in the original carton. Be sure to avoid the following:

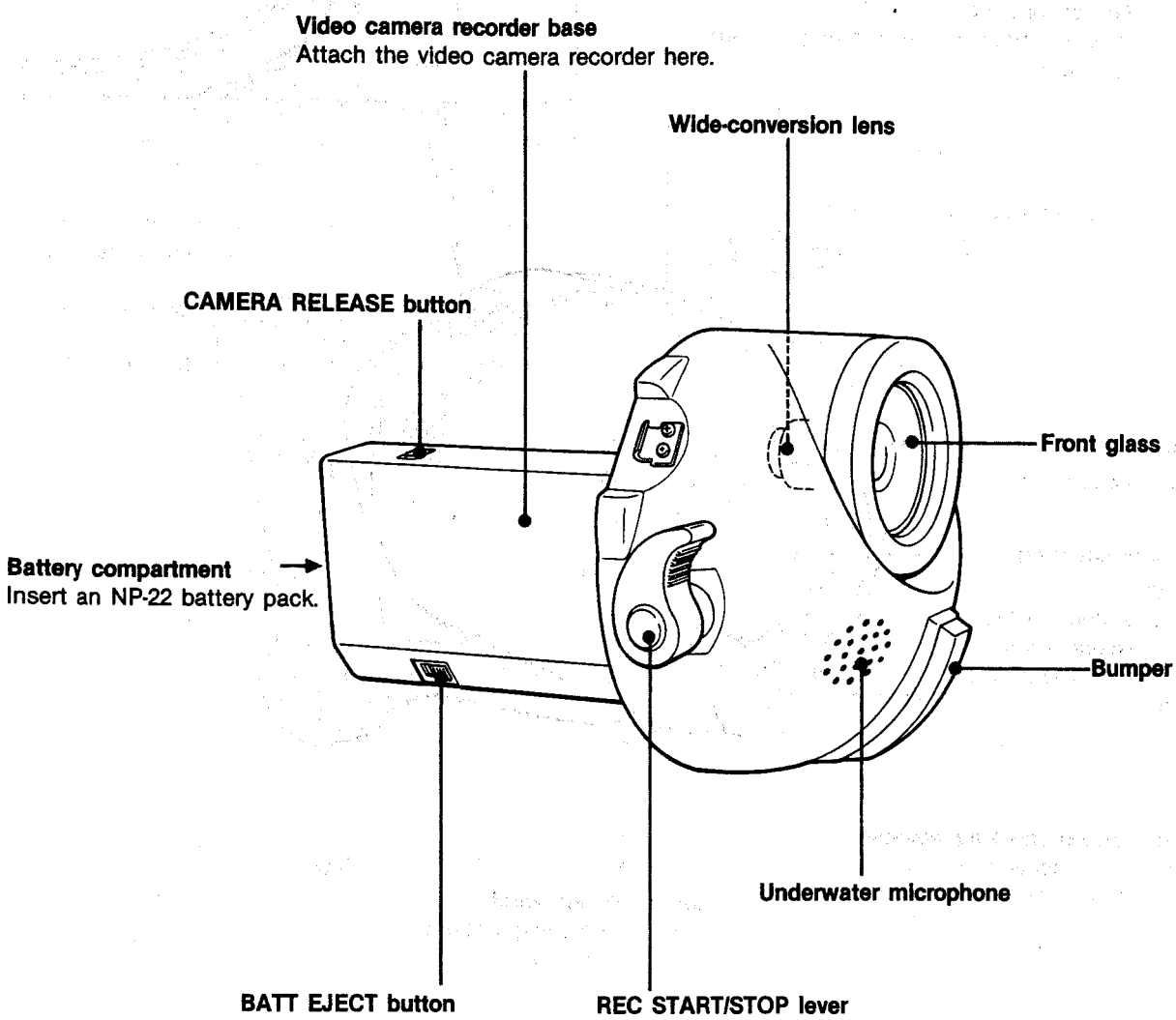
- Exposure to direct sunlight.
- Placing a heavy object on the O-ring or gasket.
- Folding the O-ring or gasket.

Useful life of the O-ring and waterproof gasket.

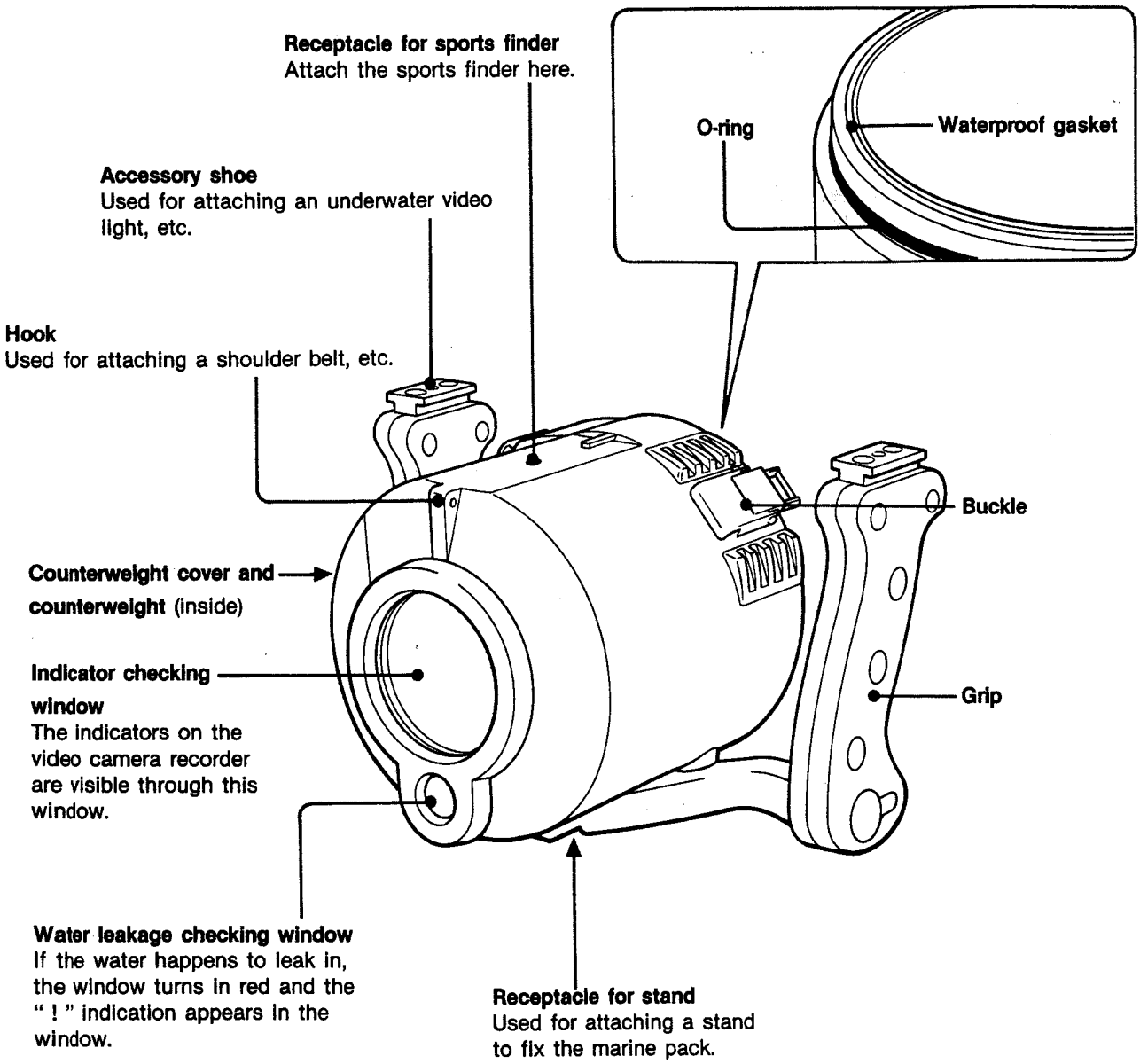
It depends upon the maintenance and the length of use, but we recommend changing it every one or two years.

1-4. COMPONENTS OF THE MARINE PACK

Front body



Rear body


Receptacle for sports finder
Attach the sports finder here.
Accessory shoe
Used for attaching an underwater video light, etc.
Hook
Used for attaching a shoulder belt, etc.
O-ring
Waterproof gasket
Buckle
Grip
Counterweight cover and counterweight (inside)
Indicator checking window
The indicators on the video camera recorder are visible through this window.
Water leakage checking window
If the water happens to leak in, the window turns in red and the " ! " indication appears in the window.
Receptacle for stand
Used for attaching a stand to fix the marine pack.

1. INSTALL THE VIDEO CAMERA RECORDER.

The grip of the video camera recorder should be removed from the recorder.

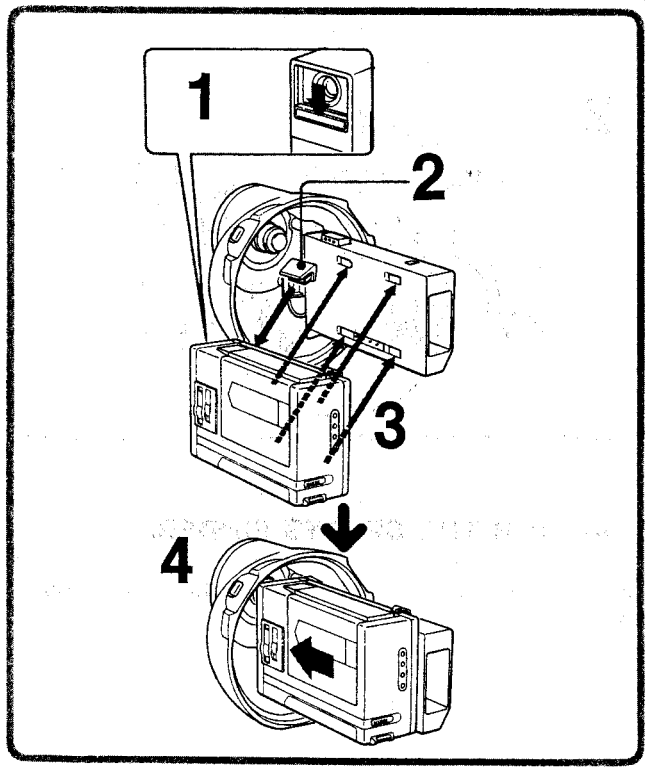
To install the video camera recorder

1 Open the lens cover completely.

2 When using the CCD-M8 series video camera recorder, insert the supplied microphone adaptor into the microphone connector on the recorder.

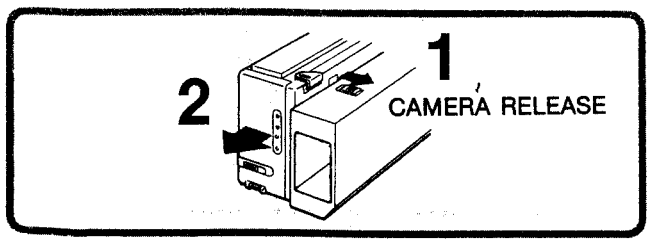
3 Align the projections on the recorder with the grooves on the base.

4 Slide the recorder toward the lens until it clicks.



To detach the video camera recorder

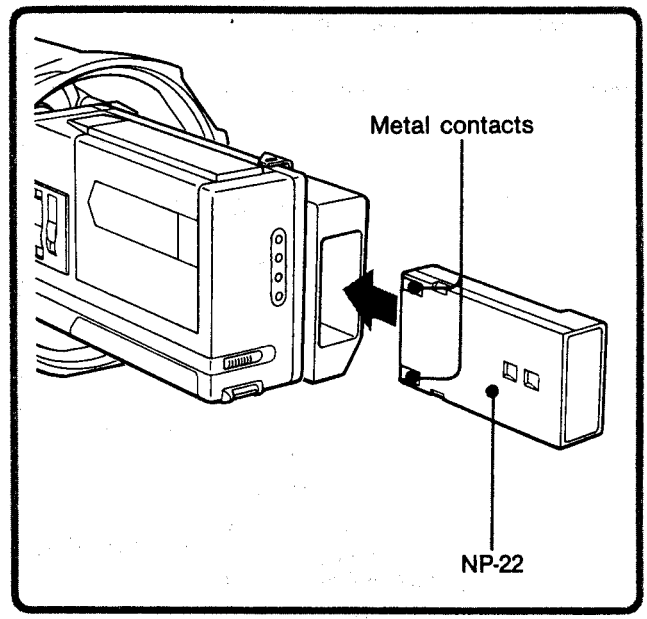
1 Pressing the CAMERA RELEASE button in the direction of the arrow, 2 slide out the video camera recorder.



2. INSTALL THE BATTERY.

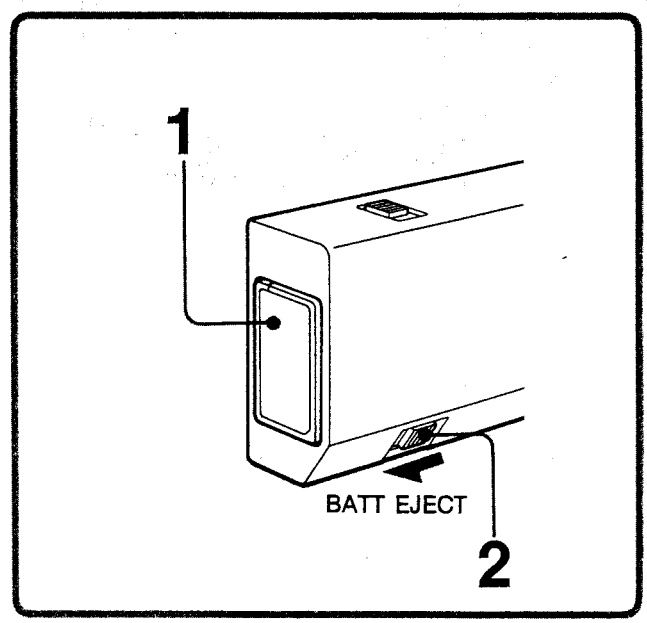
To install the battery pack

Insert an NP-22 battery pack as in the illustration.



To remove the battery pack

1 Pressing the battery pack inward, 2 slide the BATT EJECT button in the direction of the arrow.



Note

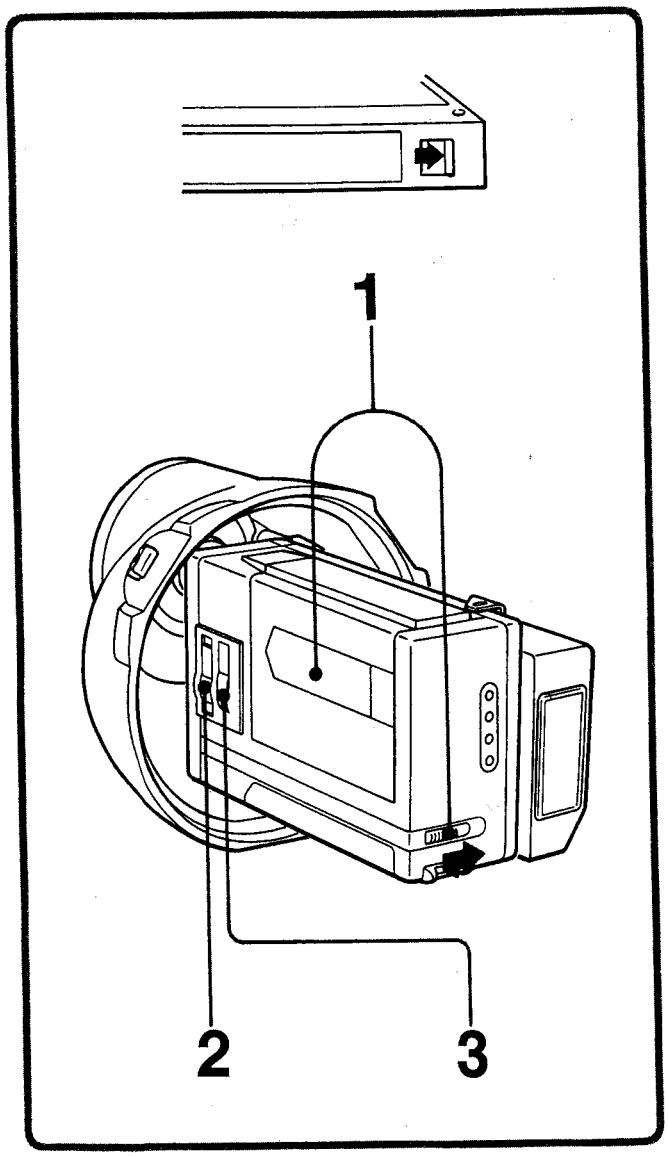
The AC pack or DC pack cannot be used with the marine pack.

3. PRESET THE VIDEO CAMERA RECORDER.

1 Make sure that the safety tab on the cassette is slid in and insert the cassette.

2 Set the FOCUS switch to ▪👥.

3 Normally set the WHITE BAL. switch to ☀. For recording at night, set it to ☀.

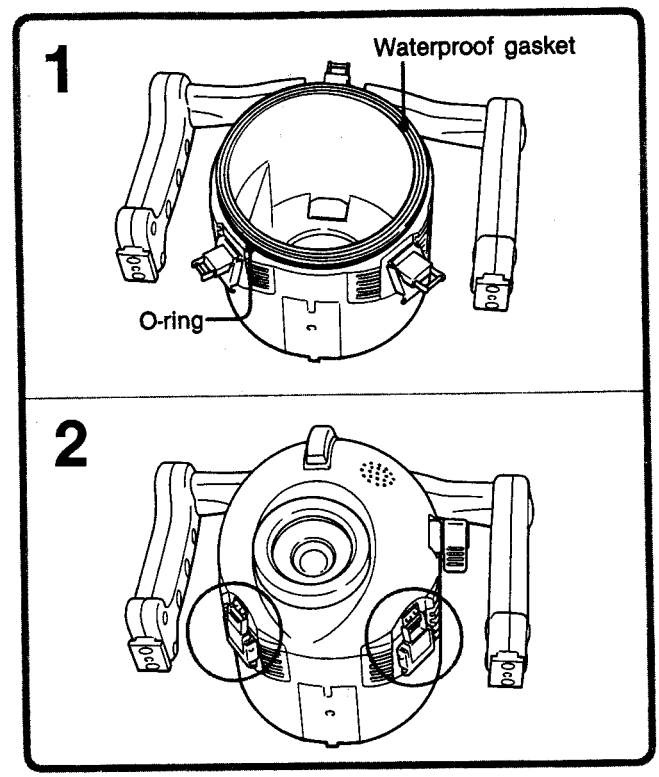


For details on recorder operation, refer to the instruction manual of the video camera recorder.

4. CLOSE THE FRONT AND REAR BODIES.

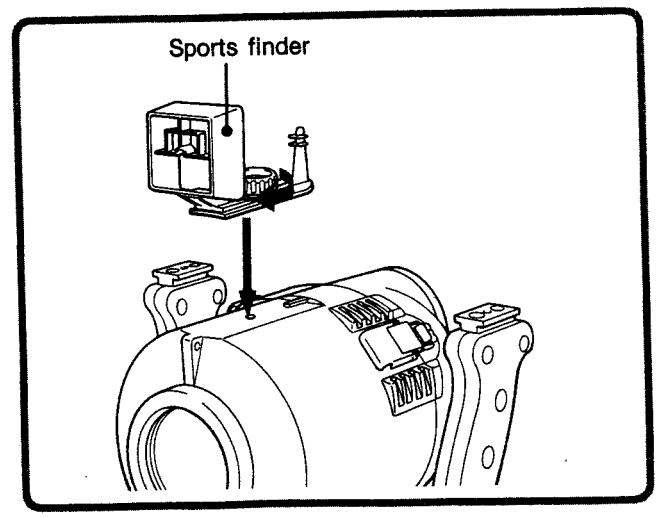
1 Check that the O-ring and waterproof gasket are all right.
The transport cover should be removed.

2 Press down the marine pack body and fasten the three buckles securely.



5. ATTACH THE SPORTS FINDER.

Turn the screw on the sports finder to secure it to the marine pack body.

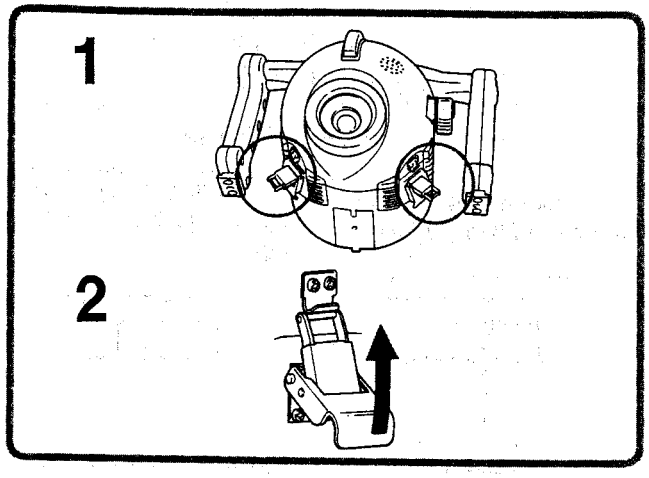


The marine pack is now ready for recording.

TO OPEN THE MARINE PACK

1 Unfasten the three buckles.

2 Set the end of a buckle to the rear of the catch and press the buckle plate in the direction of the arrow.



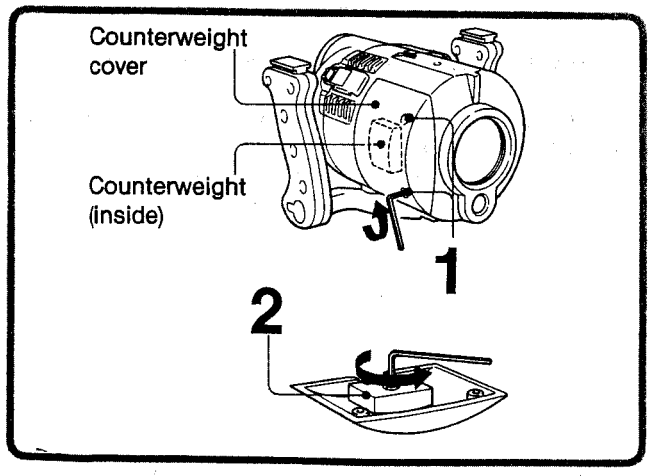
TO REMOVE THE COUNTERWEIGHT

Removing the internal counterweight allows the marine pack to float on the surface of the water.

1 Remove the two screws from the counterweight cover using the supplied hexagonal wrench.

2 Remove the screw inside the cover and detach the counterweight.

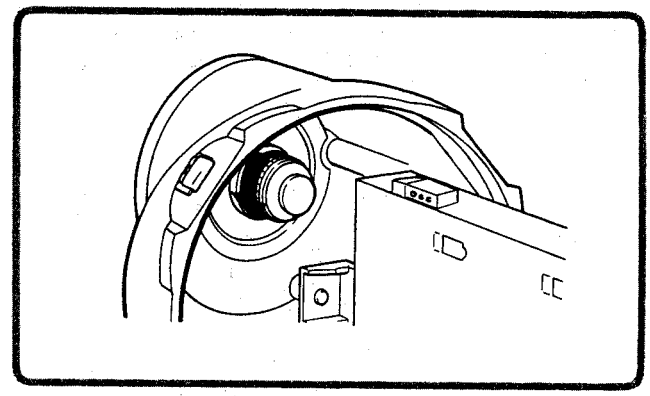
3 Tighten the screws to replace the cover.



TO REMOVE THE WIDE-CONVERSION LENS

By removing the wide-conversion lens, the subject will be shot approximately twice larger within a scene, although the shooting coverage becomes narrower.

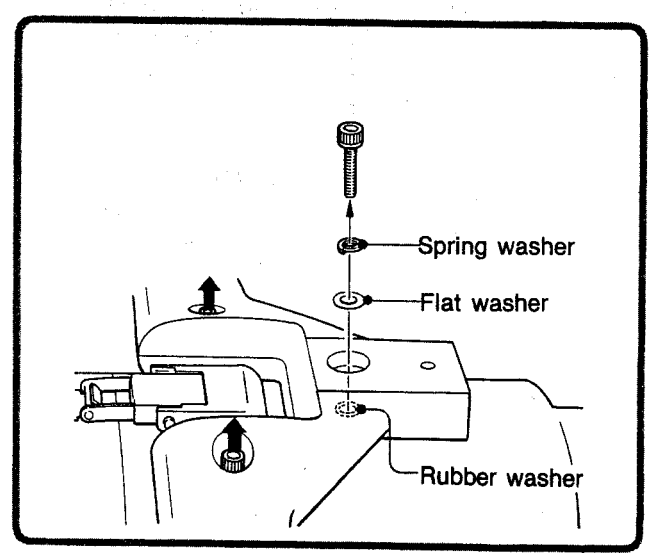
Turn the lens in the direction of the arrow and remove it.



TO REMOVE THE GRIP

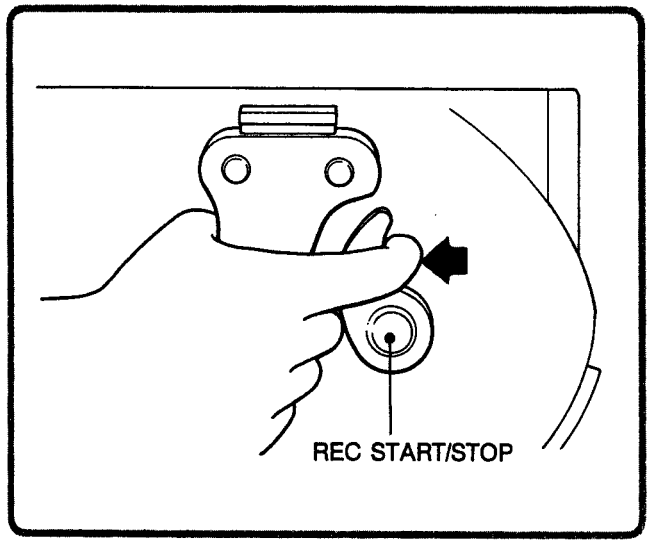
By removing the grip, the marine pack body is made more compact.

Remove the three screws using the supplied hexagonal wrench. Store the washers carefully for future re-attachment.

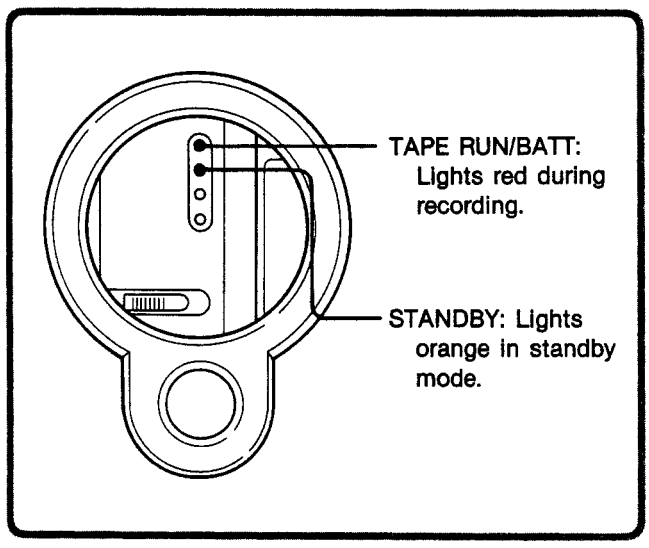


1-6. RECORDING START/STOP

To start recording, press the REC START/STOP lever momentarily toward you.
To stop recording, press the REC START/STOP lever again toward you. The recorder will enter standby mode.



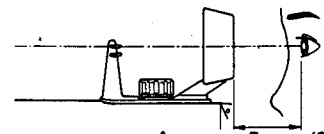
The indicators on the recorder can be checked through the window.

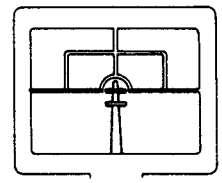
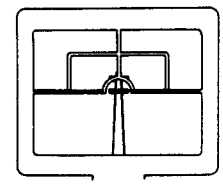


Note
If the standby mode continues for more than approximately 3 minutes, it will be automatically released and the power will be turned off.

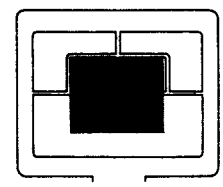
1-7. USE OF THE SPORTS FINDER

Observe the subject through the sports finder and align the horizontal bar at the center of the finder with the upper or lower horizontal bar on the sight. The scene within the finder frame will be shot.



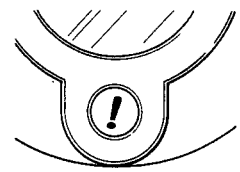
For shooting distance of more than 5 m (16 feet)	For shooting distance of approx. 1 to 2 m (3 to 7 feet)
	
Align with the upper bar of the sight.	Align with the lower bar of the sight.
For shooting distance of 2 to 5 m (7 to 16 feet), set the center bar of the finder between the upper and lower bars on the sight.	

When the wide-conversion lens is removed
The scene within the inner frame on the sports finder will be shot.



1-8. WATER LEAKAGE CHECKING WINDOW

If water happens to leak in, the water leakage checking window turns red and the " ! " indication appears in the window. (The window will return to white as it gets dry. To dry it faster, wipe water drops with tissue paper or cloth.)



In such a case, remove the marine pack from the water as soon as possible, keeping it horizontal. Be sure to follow the safety rules for diving.
Check the cause of the leakage. If the video camera recorder gets wet, take it to the nearest Sony service facility immediately.

1-9. CHECKLIST FOR HYDRAULIC PRESSURE TESTING (UNDERWATER TESTING)

Marine pack MPK-M8 requires a hydraulic pressure testing* (underwater testing) to find the defective portion and to confirm after repairing the waterproofed portions.

Please be sure to check the symptoms with the following checklist before repairing.

Symptom	Defective or damaged portions/How to repair	Hydraulic pressure test
The marine pack does not operate.	Video camera recorder does not function properly when it is set in the marine pack. → Check the functions without the marine pack. NG → There is a trouble in the video camera recorder, including defective connection of connector. → Repair. OK → Problem on marine pack Circuit problem → Replace the defective part including printed wiring board or connectors. Connection problem → Replace the defective connector. Switch problem → Replace the defective switch. Disconnection of wiring → Replace the disconnected wire. REC START/STOP function of marine pack does not operate. → See the paragraph on "Marine pack parts damage". Marine pack does not operate because of sinking. → Replace the damaged electrical parts. → See the paragraph on "Leakage of water and sinking".	NOT NECESSARY

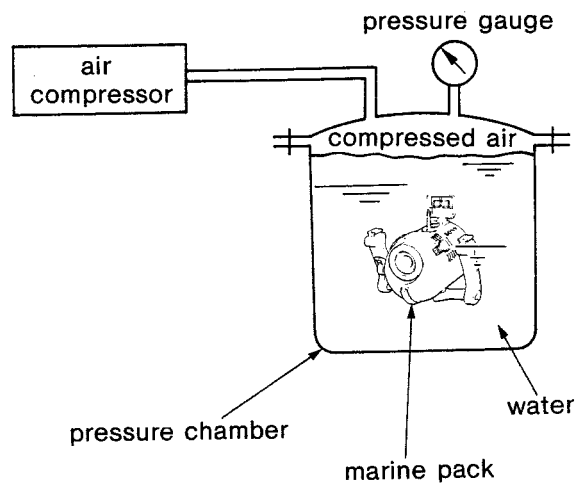
Symptoms	Defective or damaged portions/Details of symptoms			How to repair	Hydraulic pressure test
Marine pack parts damage	housing	externals of housing	The housing is scratched.	Repair the housing.	NECESSARY**
		groove for O-ring/ plane of contact with O-ring	slight damage	Grind the damaged portion with water-proof sandpaper.	NECESSARY
			serious damage	Replace the damaged part.	
		O-ring	damage or rotting	Replace the O-ring. (The life of O-ring is approx. 2 years.)	NOT NECESSARY
		waterproof gasket	damage or rotting	Replace the waterproof gasket.	NOT NECESARRY
		buckle (with screws)	damage or coming off	Replace the buckel. (If the hold of screw on the housing is widened, repair the housing.)	NOT NECESSARY
		underwater microphone	damage	Replace the underwater microphone.	NECESSARY
	grip	transformation/damage	slight damage	Replace the grip.	NECESSARY
			serious damage	Replace the grip and repair the housing. Overhaul the joined portions.	
	front glass	front protector	damage or loss	Replace the front protector.	NOT NECESSARY
		front glass	damage	Replace the front glass and overhaul the front unit.	NECESSARY
	indicator checking window	window protector	damage or loss	Replace the window protector.	NOT NECESSARY
		window glass	damage	Replace the window glass and overhaul the portion around the finder glass.	NECESSARY
		wide-conversion lens	damage or loss	Replace the lens.	NOT NECESSARY
	REC START/ STOP lever	control lever	damage or coming off	Replace the control lever.	NECESSARY
		control lever shaft	transformation	Replace the control lever shaft.	NECESSARY
		bearing	transformation or damage	Replace the bearing.	
	video camera recorder base	battery compartment	damage	Replace the battery compartment.	NOT NECESSARY
		fitting base	transformation or loss	Replace the fitting base.	
Leakage of water and sinking	Check the cause of sinking by hydraulic pressure test. (Discover the leaked portion.)			Repair the defective portion that was discovered by hydraulic pressure test. Replace the damaged parts.	NECESSARY

Note:

*: Hydraulic pressure test
Hydraulic pressure test is the way to check the pressure-preventing and waterproof characteristics of marine pack. A special water tank which is called a pressure chamber is required in this test. See the figure.

1. Sink the marine pack into the water of the pressure chamber.
2. Press the unit by compressed air.

The unit receives heavy pressure in the chamber. If the waterproofed portions except for the area between the front and rear bodies are defective, water leakage may not occur till the unit receives the pressure.



**: The hydraulic pressure test is necessary except the extremely slight damage.

1-10. WATER LEAKAGE TEST

Water leakage test is to test the marine pack for water leakage by sinking it in the water of tank; it is an effective measure to discover the leaked portion in the area between the front and rear bodies.
Before and after repairing the unit, be sure to check it by the water leakage test.

The portion that water leakage may occur

(1) The space between the front and rear bodies
The waterproof integrity of the marine pack is maintained by the O-ring, the O-ring groove, waterproof gasket and the surface of the front body where the O-ring touches.

- In the shallow water (2 meters below the water): The water pressure is not heavy, so that the waterproof function is assured by 3 buckles.
- In the deep water:
  The more the water pressure is put on, the more O-ring contacts the front and rear bodies firmly.

Therefore water leakage through the space between the front and rear bodies may be easy to occur in the shallow water.

(2) Other waterproofed portions (Ex. The front glass, indicator checking window, underwater microphone, etc.)
The waterproof function of all other portions is maintained by O-rings, screws and nuts. And it is rarely that water leakage occurs on these portions, because they are not able to touch directly on use.

The cause of water leakage

(1) Leakage through the area between the front and rear bodies
   a) When the marine pack is closed without removing any dust, sand or hair from the O-ring, the O-ring groove, the waterproof gasket and the surface of the front body where the O-ring touches, water may leak in.
   b) When the marine pack is closed with the O-ring and the cables being pinched between the front and rear bodies, water may leak in.
   c) When there are some scratches or cracks on the O-ring, water may leak in.
   d) When the surface of the front body where the O-ring touches is damaged, water may leak in.
   e) When the marine pack is not firmly closed because the buckles are defective, water may leak in.

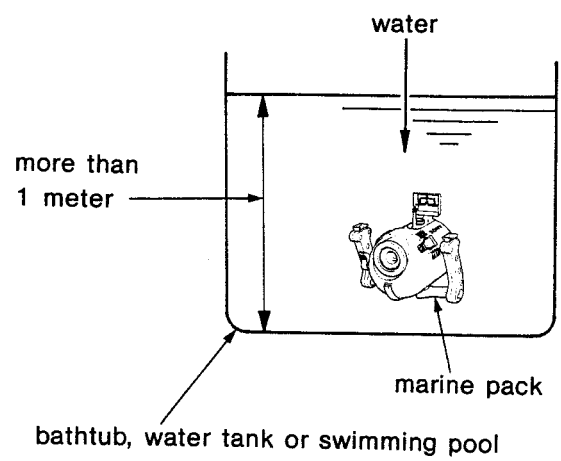
(2) Leakage through other waterproofed portions
   a) When the surface of the parts where the O-ring touches is damaged, water may leak in.
   b) When the screws or nuts for installing loosen, water may leak in.
   c) When the screws and nuts are tightened to attach the O-ring and waterproof components, if there are some dust, sand or hair on the O-ring, on the surface of the marine pack body or attached components where the O-ring touches, water may leak in.
   d) If the O-ring is forgot to put on the waterproofed portion when assembling after repairing, water may leak in.

How to test

Note:
Water leakage test is an effective measure to discover the leaked portion in the area between the front and rear bodies.
The cause which are specified in (1)-a) to (1)-e) and (2)-d) of the paragraph "The cause of water leakage" can be almost discovered by this test.
Water leakage on other portions can not be discovered by this test, so that the hydraulic pressure test is necessary.
Before and after repairing the unit, be sure to check it by the water leakage test.

Preparation:
Water leakage test requires a bathtub, water tank or swimming pool that is filled with the water.
It is desirable that the depth of water is more than 1 meter, if possible.

Test:
After closing the marine pack, sink it into the water and leave it in the water at least for 15 to 20 minutes.



Note on repairing

Before repairing:

Water leakage occurs caused by not only defect on the unit but also incorrect operation.

Check the symptom and leaked portion which are explained by the owner, and then discover the correct portion of leakage and check the cause of leakage by water leakage test.

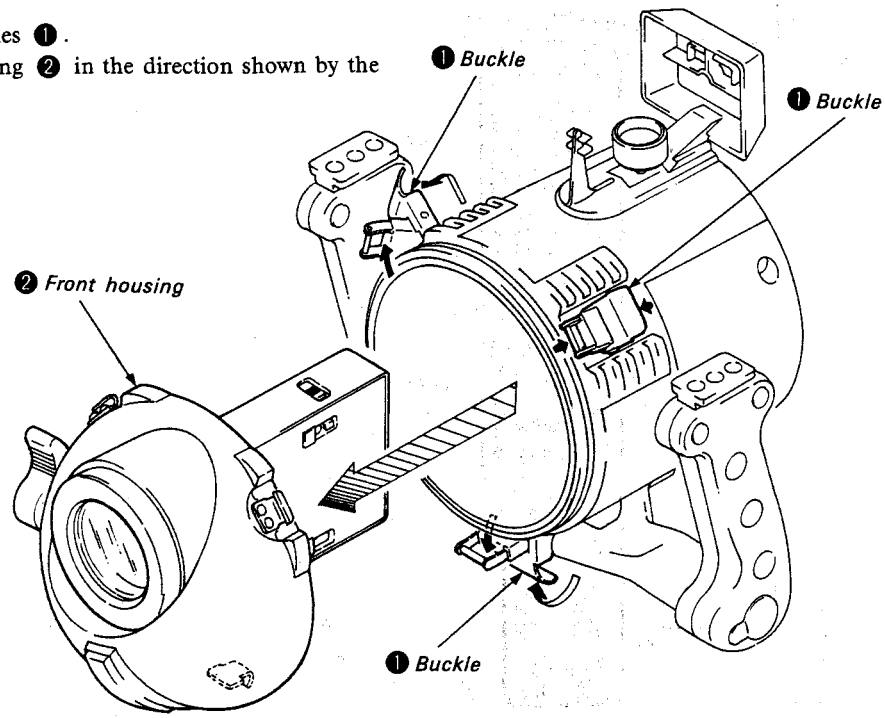
(1) When assembling the components of waterproofed portion after repairing, be careful with the following notes.
- Check that there are no scratches or cracks on the surface of the component where the O-ring touches.
- Check that there are no scratches or cracks on the O-ring.
- Check that no dust, no sand, no hair are on the O-ring.
- Grease the O-ring using a finger before putting it in the groove.
  Never use cloth or paper for greasing because the fibers may remain on the O-ring.
- Check that there are no dust, sand or hair on the surface of the component before assembling.

(2) When repairing the damaged or deformed portion on the surface of the marine pack body where the O-ring touches, be carefull with the following notes.
- The only extremely slight damage can be repaired by grinding with waterproof sandpaper.
- When grinding the damaged or deformed portion, use the waterproof sandpaper whose particles are fine with some water.
- Don't grind the damaged or deformed portion on the surface of the marine pack partially. Make the surface smooth by grinding both the damaged or deformed portion and the surroundings.
- Don't use any putty for repair.
  Because it may come off by the water pressure.

SECTION 2
DISASSEMBLY

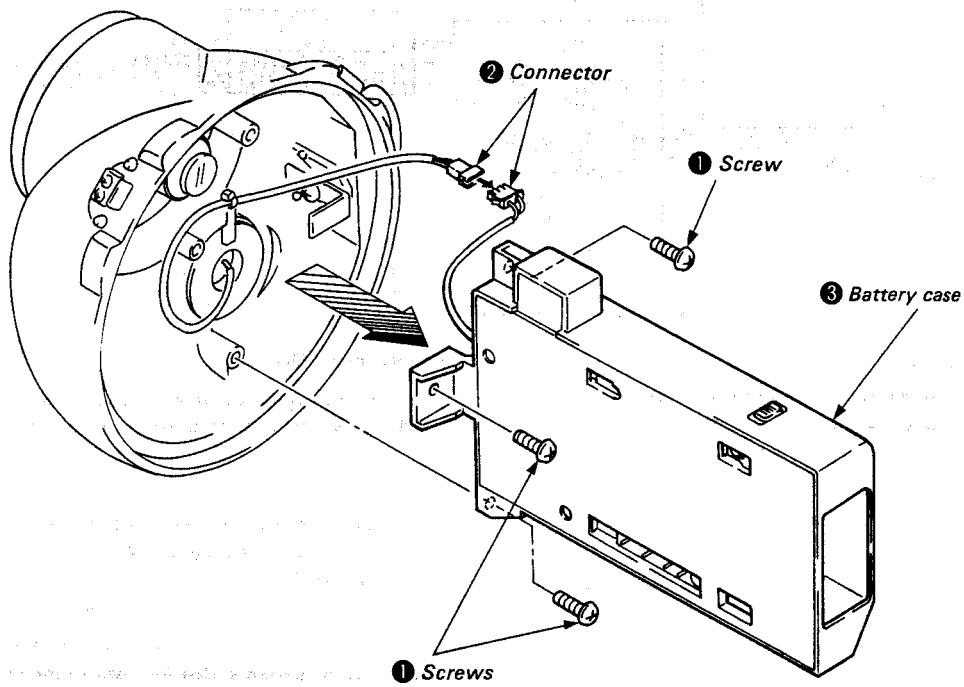
2-1. REMOVAL OF FRONT HOUSING

1) Remove three buckles ❶.
2) Remove front housing ❷ in the direction shown by the arrow.



2-2. REMOVAL OF BATTERY CASE

1) Remove three screws ❶.
2) Remove connector ❷.
3) Remove battery case ❸ in the direction shown by the arrow.



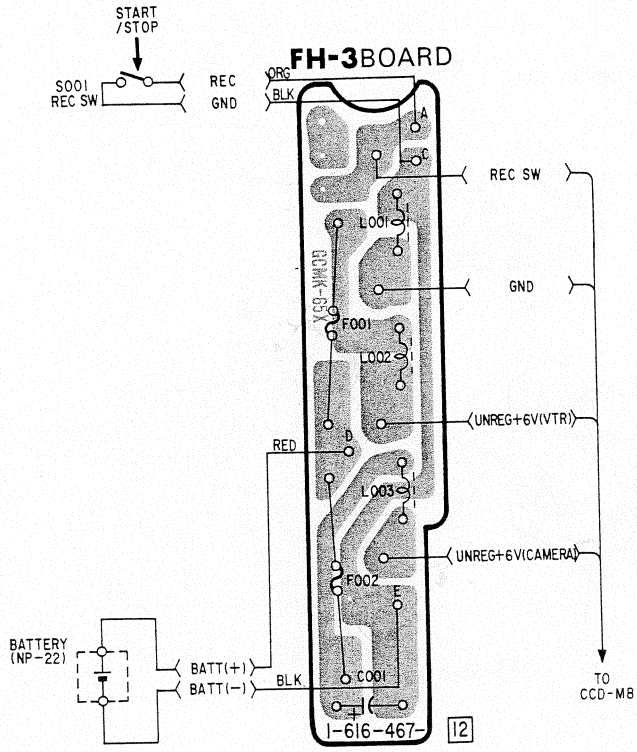
SECTION 3
PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

FH-3 (POWER)

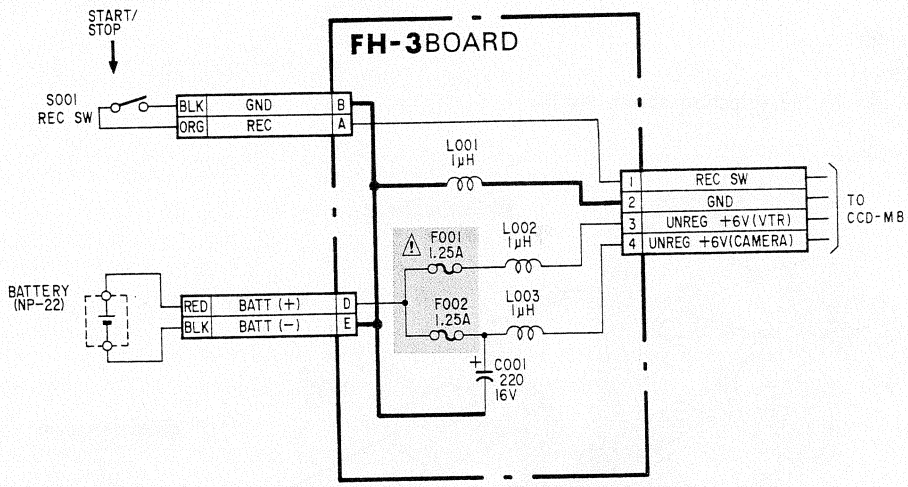
1 2 3 4 5 6 7

A B C D E F G H I J

PRINTED WIRING BOARD



SCHEMATIC DIAGRAM



Note (Printed Wiring Board):

- ○— : parts extracted from the component side.
- ▒ : soldering side pattern.

Note (Schematic Diagram):

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.

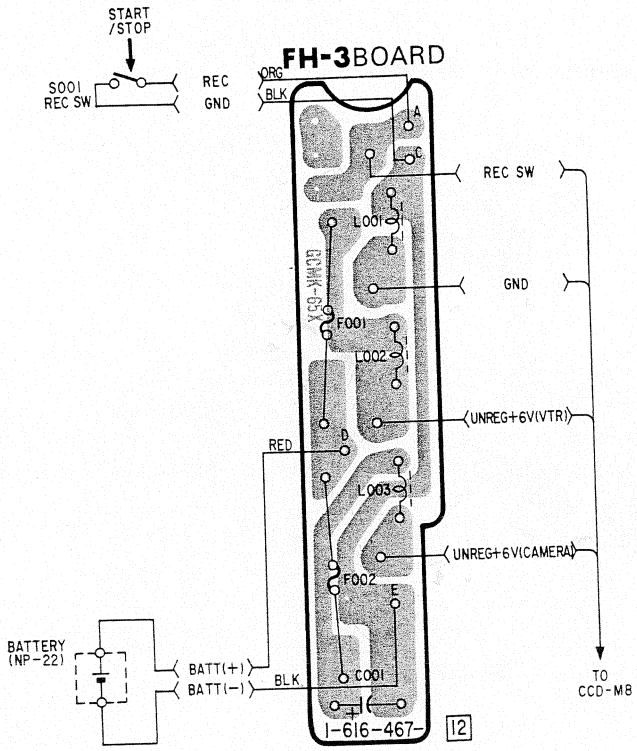
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piece portant le numéro spécifié.

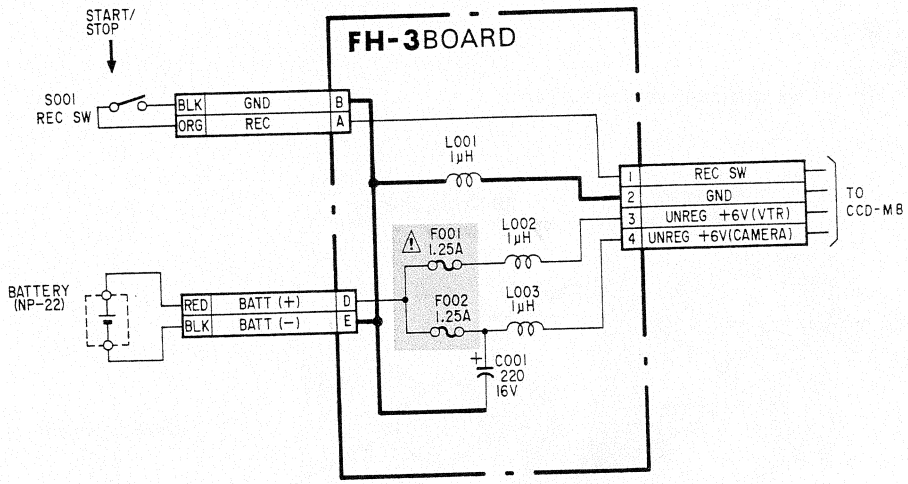
SECTION 3
PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

FH-3 (POWER)

PRINTED WIRING BOARD



SCHEMATIC DIAGRAM



Note (Printed Wiring Board):

- ○— : parts extracted from the component side.
- ▒ : soldering side pattern.

Note (Schematic Diagram):

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

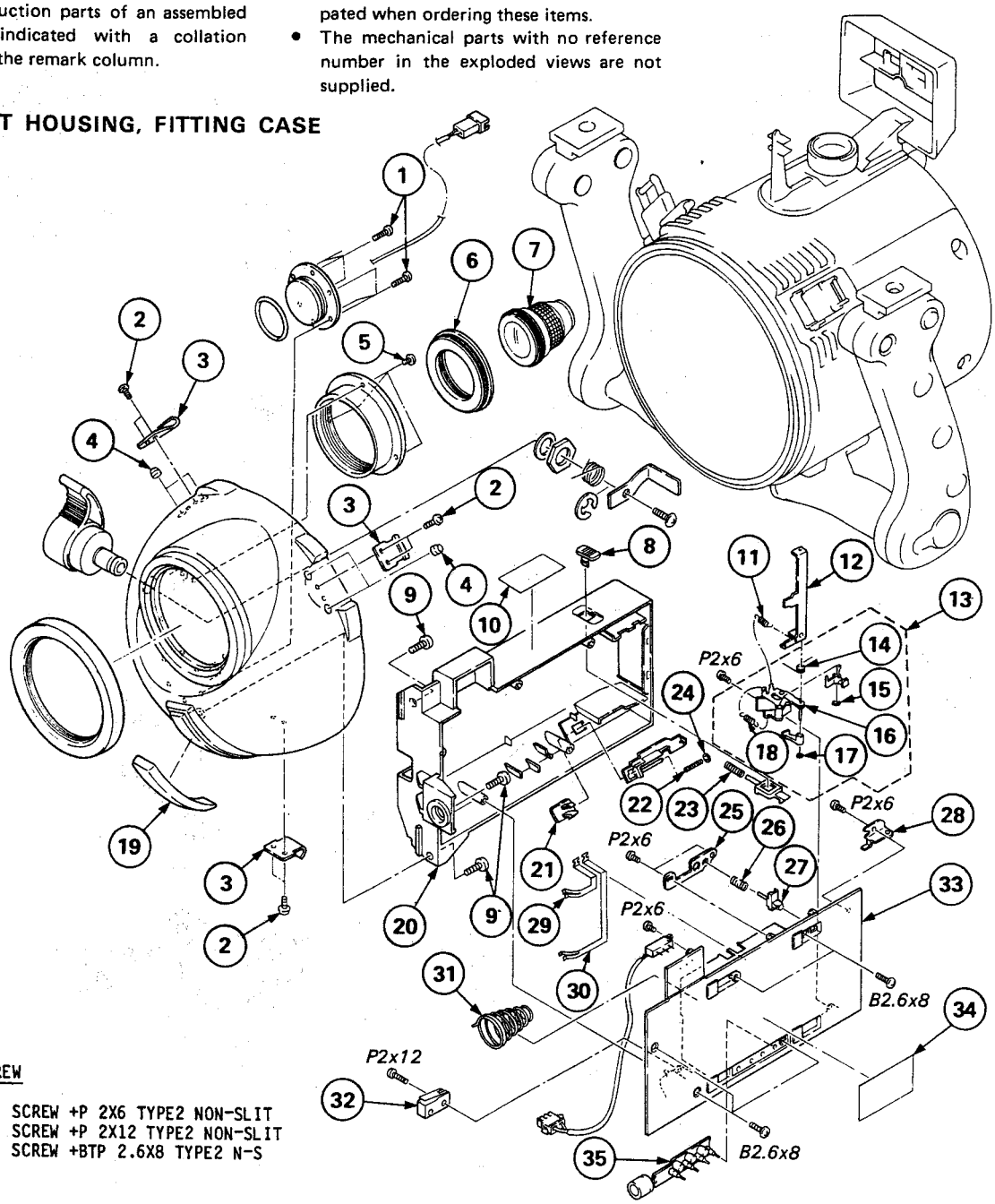
Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piece portant le numéro spécifié.

SECTION 4
EXPLODED VIEWS

NOTE:

- Itmes with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

4-1. FRONT HOUSING, FITTING CASE

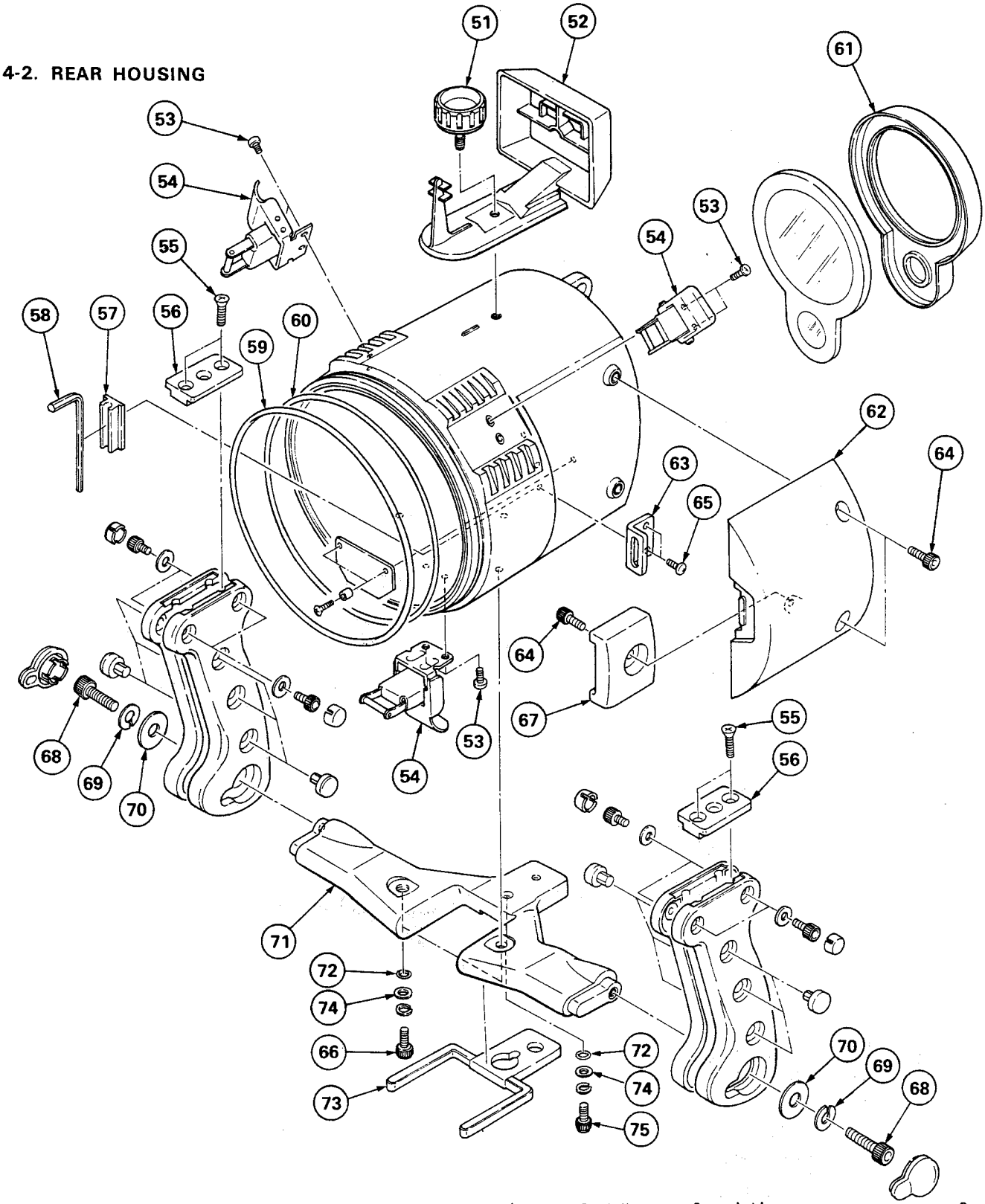


SCREW

7-685-104-14 SCREW +P 2X6 TYPE2 NON-SLIT
7-685-107-11 SCREW +P 2X12 TYPE2 NON-SLIT
7-685-134-19 SCREW +BTP 2.6X8 TYPE2 N-S

No.	Part No.	Description	Remark
1	2-115-925-11	SCREW (2) (M2X10), TAPPING	
2	2-115-926-01	SCREW, (+) (P) (M3, 5X6)	
3	2-115-906-01	RETAINER, BUCKLE	
4	2-115-933-01	BOSS, ORNAMENTAL, BUCKLE	
5	2-115-925-01	SCREW (2) (M2X5), TAPPING	
6	2-115-970-01	RING, LENS ADAPTOR	
7	2-115-967-01	LENS, WIDE CONVERSION	
8	3-695-473-01	KNOB, G RELEASE	
9	2-115-927-11	SCREW (2) (M4X12), TAPPING	
10	*2-115-955-01	LABEL, MODEL NUMBER	
11	3-307-377-11	SPRING, TENSION	
12	*3-695-446-03	PLATE, LOCK, B	
13	A-7090-137-A	SUPPORT (UPPER) BLOCK ASSY, LOCK	14-18
14	3-695-452-01	SPRING, TORSION	
15	3-315-384-11	WASHER, STOPPER	
16	X-3695-403-2	SUPPORT (UPPER) ASSY, B LOCK	
17	3-321-813-11	WASHER, COTTER POLYETHYLENE	
18	3-571-829-00	SPRING, TENSION	
19	*2-115-938-01	BUMPER	
20	2-115-952-01	CASE, FITTING	
21	3-695-456-01	KNOB, RELEASE, B	
22	3-480-102-00	SPRING, COMPRESSION	
23	3-695-457-01	SPRING, COMPRESSION	
24	3-533-073-00	WASHER	
25	*3-695-485-01	GUIDE, G LOCK	
26	3-568-315-01	SPRING, COMPRESSION	
27	2-115-920-01	LEVER, G LOCK	
28	X-3695-404-2	SUPPORT (LOWER) ASSY, B LOCK	
29	3-695-434-02	TERMINAL (A), BATTERY	
30	3-695-435-02	TERMINAL (B), BATTERY	
31	3-686-775-01	SPRING	
32	1-553-636-00	SWITCH, MICRO	
33	2-115-953-01	CASE, BATTERY	
34	*2-115-960-01	LABEL, CAUTION	
35	*1-616-467-11	FH-3 BOARD (US, CANADIAN MODEL)	
	*1-616-824-11	FH-4 BOARD (UK, E MODEL)	

4-2. REAR HOUSING



No.	Part No.	Description	Remark
51	2-115-918-01	KNOB, FINDER FITTING	
52	X-2115-901-1	FINDER ASSY	
53	2-115-926-01	SCREW, (+) (P) (M3, 5X6)	
54	2-390-778-00	BUCKLE	
55	2-115-929-01	SCREW (M5X20), (+) (K)	
56	2-115-923-01	SHOE, BRACKET	
57	*2-115-958-01	HOLDER, HEXAGON WRENCH	
58	2-115-959-01	WRENCH, 4 M/M HEXAGON ROD	
59	2-115-924-01	RING, O	
60	2-115-912-01	GASKET, WATERPROOF	
61	*2-115-941-01	PROTECTOR, INDICATION WINDOW	
62	2-115-944-01	COVER, WEIGHT (UK, E MODEL)	
	2-115-944-11	COVER, WEIGHT (US, CANADIAN MODEL)	

No.	Part No.	Description	Remark
63	*2-115-908-01	BRACKET, WEIGHT COVER	
64	2-115-930-11	BOLT (M5X12), HEXAGON SOCKET	
65	2-115-927-01	SCREW (2) (M4X6), TAPPING	
66	2-115-930-31	BOLT (M5X18), HEXAGON SOCKET	
67	2-115-922-01	WEIGHT	
68	2-115-931-01	BOLT (M8X20), HEXAGON SOCKET	
69	2-115-936-01	WASHER, SW (8) SPRING	
70	2-115-917-01	WASHER, GRIP FIXED	
71	*2-115-945-01	BASE, GRIP	
72	2-115-924-41	RING, O	
73	*2-115-943-01	GUARD, GRIP BASE UNDER	
74	2-115-935-01	WASHER, W5	
75	2-115-930-21	BOLT (M5X15), HEXAGON SOCKET	

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS — COILS

- MF : μF, PF : μμF
- MMH : mH, UH : μH

Ref.No	Part No.	Description			Remark
	*1-616-467-11	FH-3 BOARD (US, CANADIAN MODEL)			
		**********			
	*1-616-824-11	FH-4 BOARD (UK, E MODEL)			
		**********			
	3-695-436-01	PIN (A), CONTACT			
	3-695-437-01	PIN (B), CONTACT			
		CAPACITOR			
C001	1-123-321-00	ELECT	220MF	20% 16V	
		FUSE			
F001	⚠.1-532-777-21	FUSE, MICRO			
F002	⚠.1-532-777-21	FUSE, MICRO			
		COIL			
L001	1-410-337-11	MICRO INDUCTOR 1UH			
L002	1-410-337-11	MICRO INDUCTOR 1UH			
L003	1-410-337-11	MICRO INDUCTOR 1UH			
**********					
		MISCELLANEOUS			
		**********			
S001	1-553-636-00	SWITCH, MICRO			
**********					

ACCESSORIES AND PACKING MATERIALS
****

Part No.	Description	Remark
1-506-807-11	ADAPTOR, MICROPHONE	
2-115-912-01	GASKET, WATERPROOF	
2-115-921-01	GREASE	
2-115-924-01	RING, O	
*2-115-954-01	INDIVIDUAL CARTON	
*2-115-956-01	CUSHION (LOWER)	
*2-115-957-01	CUSHION (UPPER)	
*2-115-961-01	BAG, PROTECTION	
*2-115-962-01	COVER, PROTECTION	
*2-115-963-01	BAG, PROTECTION	
3-765-373-11	MANUAL, INSTRUCTION (UK, E MODEL)	
3-765-373-21	MANUAL, INSTRUCTION (US, CANADIAN MODEL)	
3-765-373-41	MANUAL, INSTRUCTION (E MODEL)	
3-765-373-51	MANUAL, INSTRUCTION (E MODEL)	

SONY

SERVICE MANUAL

US Model
Canadian Model
UK Model
E Model

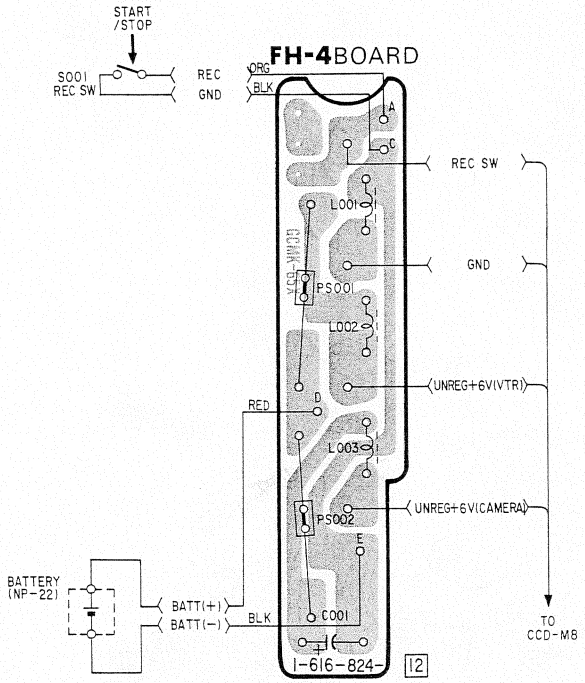
June, 1986

CORRECTION-1

FH-4 printed wiring board and schematic diagram are missing.
Please add the following information to your Service Manual.

FH-4 (POWER): FOR UK AND E MODEL

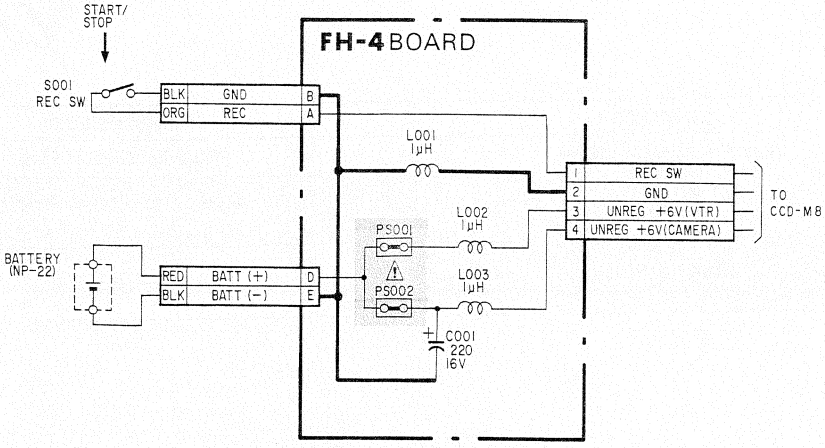
PRINTED WIRING BOARD



Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piece portant le numéro spécifié.

SCHEMATIC DIAGRAM



MICROFILM

ACC

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

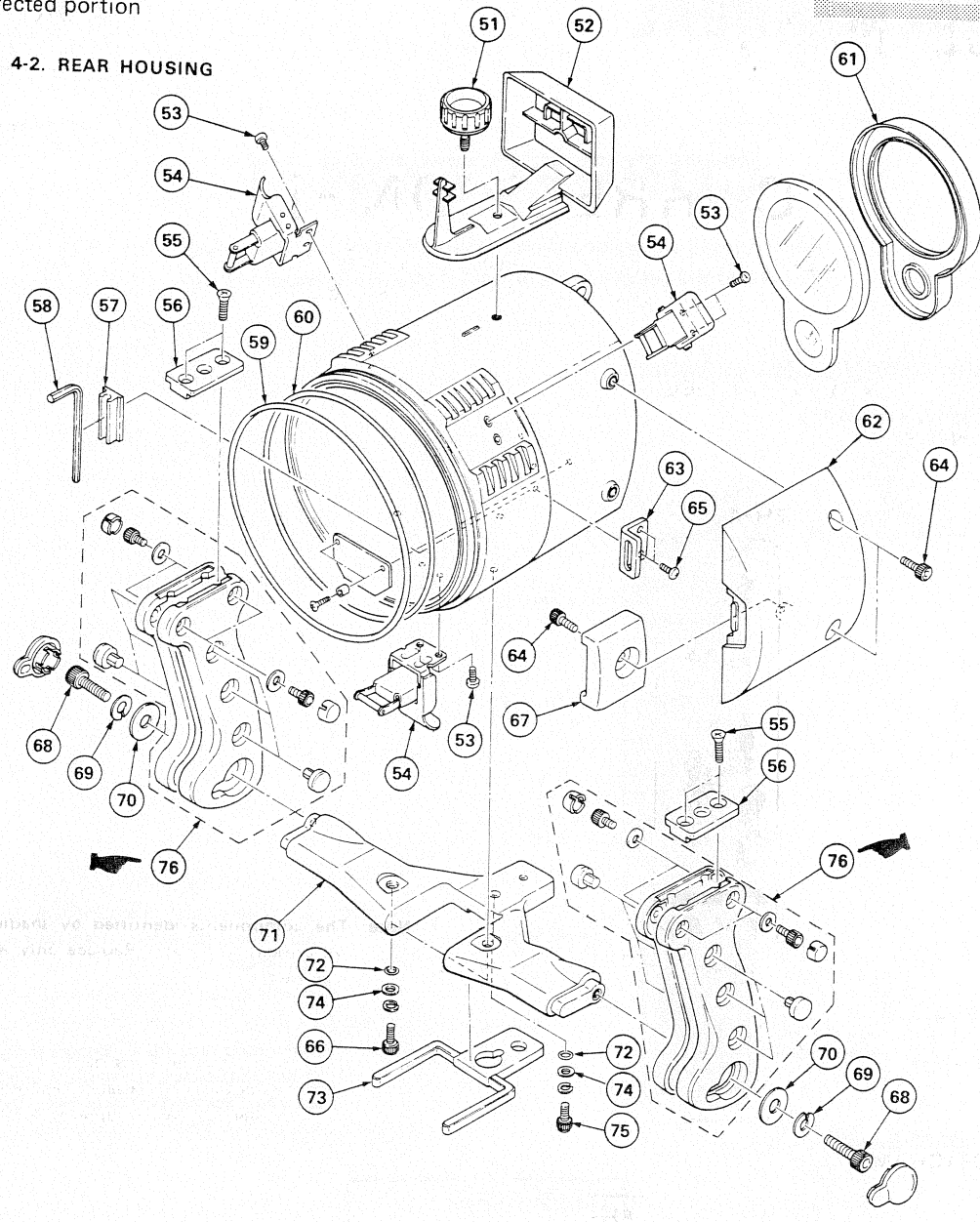
Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Add the following part.

No.	Part No.	Description
76	X-2115-903-1	GRIP ASSY

☛ : corrected portion

4-2. REAR HOUSING



Ref. No.	CORRECT	INCORRECT
	Part No./Description	Part No./Description
F001 F002	⚠1-532-777-21 FUSE, MICRO (US, CANADIAN MODEL)	⚠1-532-777-21 FUSE, MICRO
PS001 PS002	⚠1-532-840-21 IC LINK (E MODEL)	———

9-972-460-91

Sony Corporation

English
86F0969-1
Printed in Japan
© 1986